

LLNL Computation Directorate
Other Talks and Publications for CY 2003

1. Armstrong, R., G. Kumfert, et al., "Component Software for High-Performance Computing: Using the Common Component Architecture," *Tutorial, SC2003 Conference*, Phoenix, AZ, Nov. 17, 2003.
2. Armstrong, R., G. Kumfert, et al., "Common Component Architecture Tutorial," *Fourth DOE ACTS Collection Workshop*, Berkeley, CA, August 8, 2003.
3. Brown, D.L., K. Chand, W.D. Henshaw, N.A. Petersson, and D. Quinlan, "Overture and Rapsodi: Tools for Set-up and Solution of PDE-Based Problems in Complex Moving Geometry," *7th US Congress on Computational Mechanics*, Albuquerque, NM, July 2003.
4. Cantú-Paz, E., S. S. Cheung, and C. Kamath, "A Comparison of Dimensionality Reduction Methods for Retrieval of Similar Objects in Simulation Data," LLNL TR UCRL-CONF-200095, Sept. 2003.
5. Chand, K., "Solution Adaptive Mesh Optimization Using Algebraic Mesh Quality Metrics," *4th Symposium on Trends in Unstructured Meshing, 7th US Congress on Computational Mechanics*, Albuquerque, NM, July 2003.
6. Chang, B., *Analytical Tests for Ray-Effect Errors in Discrete Ordinate Methods for Solving the Neutron Transport Equation*, UCID report, 2003.
7. Chang, B., *The Chord Distribution of a Thin Spherical Shell*, UCID report, 2003.
8. Chen, S., et al., *COAMPS Version 3 Model Description*, Naval Research Laboratory Report NRL/PUR/7500—03-448 (2003).
9. Cheung, S.-C. , and A. Zakhor, "Efficient Video Similarity Measurement with Video Signature," Chapter 28 of *Handbook of Video Databases: Design and Applications*, Eds. B. Furht and O. Marques, CRC Press, 2003.
10. Cheung, S. S., "Robust Techniques for Background Subtraction," *Signal and Imaging Sciences Workshop*, Center for Advanced Signal and Imaging Sciences, LLNL, Livermore, CA, November 21, 2003. UCRL-PRES-201051.
11. Christofferson, E., and D. MacQueen, *LLNL Experimental Test Site 300 Compliance Monitoring Program for RCRA-Closed Landfill Pits 1 and 7, Annual Report for 2002*, 2003. UCAR-10191.
12. Cupps, K. C., "Benchmarking Efforts at LLNL" *Hex-Lab Summit, Santa Fe NM, May 19, 2003*.
13. Dahlgren, T., T. Epperly, G. Kumfert, D. Quinlan, M. Schordan, and Q. Yi, "Toward the Automated Generation of Components from Existing Source Code," *9th International Workshop on High-Level Parallel Programming Models and Supportive Environments*, Santa Fe, NM, April 26, 2003. pp.8. UCRL-CONF-201199.
14. Dahlgren, T., T. Epperly, and G. Kumfert, "Introduction to Babel Technologies," UCRL-200001 PRES, August 2003.
15. Dahlgren, T., T. Epperly, and G. Kumfert, "The Scientific Interface Definition Language," UCRL-PRES-200007, August 2003.
16. Dahlgren, T., T. Epperly, and G. Kumfert, "Babel 0.8.4 Release," *CCA Working Group Meeting*, Salt Lake City, UT, April 10–11, 2003. UCRL-PRES-152695.
17. Dahlgren, T., T. Epperly, and G. Kumfert, "Babel/SIDL Design by Contract: Status," *CCA Working Group Meeting*, Salt Lake City, UT, April 10–11, 2003. UCRL-PRES-152674.
18. Dahlgren, T., T. Epperly, and G. Kumfert, "CCA Components in Fortran 90 Using Babel," *CCA Working Group Meeting*, Salt Lake City, UT, April 10–11, 2003. UCRL-PRES-152699.

19. Dahlgren, T., T. Epperly, and G. Kumfert, "Babel 0.8.0 Release," *CCA Working Group Meeting*, Pasadena CA, January 15–17, 2003. UCRL-PRES-151471.
20. Day, S., J. Bielak, D. Dreger, A. Fernandez, S. Larsen, et al., "Validation of 3D ground motion simulations for the SCEC community velocity model," *Southern California Earthquake Center Annual Meeting*, Oxnard, CA, September 2003. UCRL-JC-155549.
21. Day, S., J. Bielak, D. Dreger, A. Fernandez, S. Larsen, et al., "3D ground motion simulations for scenario earthquake using the SCEC community velocity model," *Southern California Earthquake Center Annual Meeting*, Oxnard, CA, September 2003. UCRL-JC-155550.
22. de Supinski, B. R., A. Yoo, S. A McKee, M. Schulz, and T. Mohan, *Exploration of SMP-Aware DAO Memory Performance Issues: Final Report 2002*, UCRL-ID-151790, Feb. 2003.
23. de Supinski, B. R., S. A. McKee, F. Mueller, and G. S. Tyson, "Memory System Technologies for Future High-End Computing Systems," LLNL TR UCRL-ID-153361, May 2003.
24. de Supinski, B., et al., "Performance Technologies for Peta-Scale Systems: A White Paper Prepared by the Performance Evaluation Research Center and Collaborators," LLNL TR UCRL-ID-153359, May 2003.
25. de Supinski, B., J. Marathe, F. Mueller, T. Mohan, S. McKee, and A. Yoo, "METRIC: Tracking Down Inefficiencies in the Memory Hierarchy via Binary Rewriting," *Int. Symp. Code Generation & Optimization*, San Francisco, CA, March 23–26, 2003. UCRL-JC-151497.
26. Dolence, D., D. Dreger, and S. Larsen, "Basin structure influences on the teleseismic wave propagation in the Santa Clara Valley, California," 2003. LLNL TR UCRL-JC-155551, 2003.
27. Dumett, M., "FAS interpolation and smoother components: a comparative study", *Sixth IMACS International Symposium on Iterative Methods in Scientific Computing*, Denver, CO, March 27–30, 2003. Also presented at *Eleventh Copper Mountain Conference on Multigrid Methods*, Copper Mountain, CO, March 30–April 4, 2003.
28. Eliassi-Rad, T., and T. Critchlow, "Multivariate Clustering of Large-Scale Scientific Simulation Data," LLNL TR UCRL-JC-153698, June 2003.
29. Falgout, R., and P. Vassilevski, "On Generalizing the AMG Framework," *Cooper Mountain Conference on Multigrid Methods* Copper Mountain, CO, March 31–April 4, 2003. UCRL-PRES-150807, April 2003.
30. Fattebert, J.L., and F. Gygi, "Convergence and Accuracy of Finite Difference Electronic Structure Calculations with Localized Non-orthogonal Orbitals," *American Physical Society*, Austin, TX, March 2003. UCRL-PRES-151314.
31. Fisher, K., S. Larsen, and M. Quarry, "Detection and localization of interface flaws in a multilayered elastic structure using a limited view tomographic imaging technique," *IEEE Ultrasonics Symposium*, Honolulu, HI, October 2003. UCRL-JC-153255.
32. Fodor, I.K. and C. Kamath, "Efficient Segmentation of Spatio-Temporal Data from Simulations," *Proceedings, Image and Video Communications and Processing, SPIE Electronic Imaging*, San Jose, CA, Vol. 5022, pp. 366–376, January 2003. UCRL-JC-148906.
33. Fodor, I.K. and C. Kamath, "Using Independent Component Analysis to Separate Signals in Climate Data," *Proc. of the Independent Component Analysis, Wavelets, and Neural Networks, SPIE Aerosense*, Orlando, FL, April 2003, pp.25–36. UCRL-JC-151808.
34. Fodor, I.K., "Statistical Techniques to Find Similar Objects in Images," *Pro. of the American Statistical Association, Statistical Computing Section*, October 2003. UCRL-PROC-200388.
35. Franz A., K. Dyer, et al., "Stochastic Engine Software Development Guide," 2003. LLNL TR UCRL-TM-200386, 2003.

36. Gardner, S., et al., "Sequencing Analysis Pipeline," report prepared for an undisclosed federal agency, August 2003.
37. Girill, T. R., "Confronting Illiteracy with Scientific Communication," *The Exchange* (Newsletter of the Scientific Communication Special Interest Group, Society for Technical Communication), 10 (1), February 2003, pp. 1, 3.
38. Grover, B. T., "Research Report on Feasibility Study of Building a QT Testing Tool-AX Program Code Group Computer Science R & D Project," LLNL TR UCRL-ID-153221, May 2003.
39. Gygi, F., "Advanced Simulation Software for Nanotechnology," *Girvan Institute Advisory Board*, Moffett Field, CA, May 28, 2003. UCRL-PRES-153553.
40. Gygi, F., and Fattebert J.L., "Calculations of Maximally Localized Wannier Functions by Approximate Simultaneous Diagonalization," *American Physical Society*, Austin, TX, March 2–7, 2003. UCRL-PRES-148906.
41. Hadjiconstantinou, N. G., A. L. Garcia, H. Al-Mohssen, R.D. Hornung, and H.S. Wijesinghe, "DSCM in Micro/Nano Scale Science Technology," *Direct Simulation Monte Carlo: The Past 40 Years and the Future*, Milan, Italy, May 2–5, 2003. UCRL-PRES-153552.
42. Harben, P., D. Harris, S. Myers, S. Larsen, et al., "Developing smart seismic arrays: a simulation environment, observational database, and advanced signal processing," LLNL TR UCRL-ID-155285, 2003.
43. Hindmarsh, A., P. N. Brown, K. Grant, S. L. Lee, R. Serban, D. Shumaker, and C. Woodward, "SUNDIALS: Suite of Nonlinear and Differential/Algebraic Equation Solvers," LLNL TR UCRL-JRNL-200037, September 2003.
44. Horowitz, B., *Giotto: A Time-Triggered Language for Embedded Programming*, PhD Thesis, University of California, Berkeley, December, 2003.
45. Hysom, D., and C. Baldwin, "Parallel Algorithms and Experimental Results for Multiple Genome Alignment of Viruses and Bacteria," *11th SIAM Conference on Parallel Processing for Scientific Computing*, San Francisco, CA, Feb. 2004.
46. Johnson D., "Argus Modernization & Viability," LLNL TR UCRL-PRES-202008, 2003.
47. Johnson, D., "Argus Evolution 2004," LLNL TR UCRL-PRES-202010, 2003.
48. Johnson, D., "Argus Hardware Builds," LLNL TR UCRL-PRES-202009, 2003.
49. Johnson, J. R. "A High Performance Parallel Design and Implementation of Grandy's Algorithm for Intersecting Arbitrary Polyhedra," *SIAM Conference on Geometric Design and Computing*, Seattle, WA, November 2003.
50. Johnson, J.R., I. Foster, "Ouroboros: A Tool for Building Generic, Hybrid, Divide & Conquer Algorithms" Poster presentation SC2003, Phoenix, AZ, November 2003.
51. Johnson, J. N. and P. F. Dubois, "Issue Trackers," *Computing in Science and Engineering*, November–December 2003. UCRL-JC-15526.
52. Jones, D., "How to Create Stations and Portals," LLNL TR UCRL-TM-202193, 2003.

53. Kumfert, G. K., "Understanding the CCA Standard through Decar," LLNL TR UCRL-MA-148390, April 2003.
54. Larsen, S., "Amplification of seismic ground motions in the Las Vegas Basin, Nevada," 2003. LLNL TR UCRL-PRES-154913, 2003.
55. Lee, S. L., and P. D. Hovland, *Complex-Step Derivative Techniques for Forward Sensitivity Analysis in Time-Dependent Problems*, LLNL TR UCRL-JP-200253, October 2003.
56. Lindstrom, P., V. Pascucci, S. Pesco, and C. T. Silva, *Implicit Occluders*, LLNL TR UCRL-JC-152971, April 2003.
57. Line, P., L. Cinquini, R. Drach, D. Middleton, D. Williams, et al., "An Ontology for Scientific Information in a Grid Environment: the Earth System Grid," *Proc. of the 3rd International Symposium on Cluster Computing and the Grid*, Tokyo, Japan, May 2003.
58. Mariella, R., A. Christian, J. Young, S. Gardner, et al., *Oligonucleotide and Long Polymeric DNA Encoding*, report prepared for DARPA, October 2003.
59. McCallen, D., and S. Larsen, *NEVADA - A simulation environment for regional estimation of ground motion and structural response*, 2003. LLNL TR UCRL-ID-152115, 2003.
60. McCallen, R. C., et. al, *Aerodynamic Design of Heavy Vehicles Reporting Period October 15, 2002 through January 15, 2003*, LLNL TR UCRL-ID-151812, January 28, 2003.
61. McCallen, R. C., et al., *FY2003 Annual Report: DOE Project on Heavy Vehicle Aerodynamic Drag*, LLNL TR UCRL-TR-200618, November 1, 2003.
62. McCallen, R. C., et al., *May 2003 Working Group Meeting on Heavy Vehicle Aerodynamic Drag: Presentations and Summary of Comments and Conclusions*, LLNL TR UCRL-ID-154886, May 1, 2003.
63. Mirin, A.A. and W. Sawyer, "Status Report on Finite-Volume Dynamical Core in Community Atmospheric Model (CAM2)," *Community Climate System Model (CCSM) Workshop*, Breckenridge, CO, June 2003. UCRL-PRES-153661 (June 2003).
64. Mirin, A.A., *Nested OpenMP Parallelism*, Lawrence Livermore National Laboratory technical report UCRL-PRES-200028, August 2003.
65. Morris, J., L. Glenn, F. Heuze, and M. Bonner, "Simulations of underground structures subjected to dynamic loading using the distinct element method," *13th American Physical Society Topical Conf. on Shock Compression of Condensed Matter*, Portland, OR, July 2003. UCRL-JC-146927.
66. Myers, S., J. Wagner, S. Larsen, et al., "Simulation of regional explosion S-Phases (SiRES) project," *Seismic Research Review*, Tucson, AZ, September, 2003. UCRL-JC-153604.
67. Newsam, S., "Texture Features for Image Retrieval," *Center for Advanced Signal and Imaging Sciences (CASIS) Workshop*, Livermore, CA, November 20–21, 2003. UCRL-PRES-201053.
68. Ovcharenko, I., "ECR Browser, a tool for accessing data from genome comparisons, and its application to rat genome analysis", poster, *Rat Genomics and Models Meeting*, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, December 2003.
69. Pampinella S., *Security Administrator User Guide*, LLNL TR UCRL-MA-146454-RE1, 2003.
70. Pampinella, S., and L. Gee, *Argus Database Administrator User Guide*, LLNL TR UCRL-TM-200652, 2003.

71. Petersson, A., "Rapsodi: Geometry Preparation and Grid Generation," *SIAM Conf. Comput. Sci. & Eng.*, San Diego, CA, February 9–13, 2003. UCRL-PRES-152332, March 2003.
72. Proctor, D., H.D. Shay, M.B. Aufderheide, III, and D.M. Slone "Quantifying Expert Opinion in Image Comparison", JOWOG 32P, Las Vegas, NM, April 9, 2003.
73. Rodgers, A., D. McCallen, S. Larsen, et al., "The Las Vegas Valley seismic response project," *IRIS/UNAVCO Workshop*, Fish Camp, CA, June 2003. UCRL-JC-153010.
74. Sanchez, L., D. MacQueen, et al., *Environmental Report 2002*, August 2003. LLNL TR UCRL-50027-02.
75. Serban, Radu, "SUNDIALS - Suite of Nonlinear and Differential/Algebraic Equation Solvers," *Solution Methods for Large-Scale Nonlinear Problems*, Livermore, CA USA, August 6–8, 2003. Poster. UCRL-MI-154583.
76. Shay, H.D., A.E. Schach von Wittenau, M.B. Aufderheide, III, D.M. Slone, "PRAD Sensitivity to Mix," Presentation to the AHF Mix Subcommittee, April 8, 2003.
77. Shay, H.D., et. al. "Evaluation of PINEX Figures of Merit with Cornucopia Data", *Nuclear Explosives Design Physics Conference*, Los Alamos, NM; October 2003.
78. Shay, H.D., M.B. Aufderheide, A.E. Schach von Wittenau, D.M. Slone, "Estimates of the Sensitivity of Proton Radiography in Advanced Hydro Facility to Mix," *Nuclear Explosives Design Physics Conference*, Los Alamos, NM, October 2003.
79. Silva, C. T., Y. Chiang, W. Correa, J. El-Sana, and P. Lindstrom, *Out-of-Core Algorithms for Scientific Visualization and Computer Graphics*, LLNL TR UCRL-JC-150434-REV-1, Mar. 2003.
80. Slone, D.M., et al., "A MCMC Approach to Transmission Tomography From a Limited Number of Views", *5th International Congress on Industrial and Applied Mathematics*, Sydney, Australia, July 7–11, 2003.
81. Tannahill, J., *Parallel netCDF Study*, LLNL Computation Tech-base Report, September 2003. UCRL-PRES-200247.
82. Trebotich, D., P. Colella, G. Miller, and D. Liepmann, "A Numerical Model of Viscoelastic Flows in Microchannels," *Nanotech 2003*, San Francisco, CA, February 23–27, 2003. UCRL-PRES-150969.
83. Trebotich, D., P. Colella, and G. H. Miller, *A Projection Method for Viscoelastic Flow in Microchannels*, LLNL TR UCRL-JC-153079, May 2003.
84. Vassilevski, P. S., "Monotone Element Agglomeration AMGe for Contact Problems," *15th International Conference on Domain Decomposition Methods*, Berlin, Germany, July 2–25, 2003. UCRL-JC-153760-ABS, June 2003.
85. Vassilevski, P. S., and A. H. Iontcheva, "Nonlinear AMGe With Coarsening Away From the Contact Boundary for the Signorini's Problem," *Eleventh Copper Mountain Conference on Multigrid Methods*, Copper Mountain, CO, March 30–April 4, 2003. UCRL-PRES-151569.
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87. Vassilevski, P. S., T. Kolev, and J. Pasciak, "Algebraic Construction of Mortar Finite Element Spaces With Application to Parallel AMGe," *11th Copper Mountain Conference on Multigrid Methods*, Copper Mountain, CO, March 30–April 4, 2003. UCRL-JC-153326.

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89. Wilson, R., *Argus Development FY04 2nd Quarter*, LLNL TR UCRL-PRES-202011, 2003.
90. Wilson, R., *Emergency Response Override*, LNL TR UCRL-PRES-202012, 2003.
91. Woodward, C. S., R. Wasyk, P. N. Brown, “Newton-Krylov Methods for Expensive Nonlinear Function Evaluations,” *Solution Methods for Large-Scale Nonlinear Problems Workshop*, Livermore, CA, , August 6–8, 2003. UCRL-MI-154596.
92. Yang, U. M., “On the Use of Relaxation Parameters in AMG,” *2003 International Conference on Preconditioning Techniques for Large Sparse Matrix Problems in Scientific and Industrial Applications*, Napa, CA, October 27–29, 2003, UCRL-PRES-200277.
93. Yang, U. M., “On the Use of Relaxation Parameters in Hybrid Smoothers,” *Eleventh Copper Mountain Conference on Multigrid Methods*, Copper Mountain, CO, March 30–April 4, 2003, UCRL-PRES-151575.